Listing of the Claims

1. (Currently Amended) An MRI apparatus that includes a magnet system for generating a B_0 magnetic field in an examination zone ~~(12)~~ between poles ~~(14,16)~~, the apparatus comprising:

a first, planar resonator ~~(22)~~ disposed between one of the pole pieces ~~(14,16)~~ and the examination zone ~~(12)~~, arranged substantially in a first common plane;

a first RF screen ~~(26)~~ disposed between the first pole piece and the first resonator ~~(22)~~.

2. (Currently Amended) The MRI apparatus as set forth in claim 1, further including:

a first gradient coil system ~~(18)~~ disposed between the first RF screen and the first pole piece.

3. (Currently Amended) The MRI apparatus as set forth in claim 1, further including:

a second, planar resonator ~~(24)~~ disposed between the remaining one of the pole pieces ~~(14,16)~~ and the examination zone ~~(12)~~, arranged substantially in a second common plane;

a second RF screen ~~(28)~~ disposed between the second pole piece and the second resonator ~~(24)~~; and

a second gradient coil system ~~(20)~~ disposed between the second RF screen and the remaining pole piece.

4. (Currently Amended) The MRI apparatus as set forth in claim 2, wherein the first resonator ~~(22)~~ includes:

a first circular plate ~~(30)~~;

a first circular conducting ring ~~(32)~~ surrounding the first circular plate; and

a first plurality of capacitors ~~(34)~~ arranged radially around the first circular plate, connecting the first circular plate to the first circular ring.

5. (Currently Amended) The MRI apparatus as set forth in claim 4, wherein the second resonator ~~(24)~~ includes:

a second circular plate ~~(30)~~;

a second circular conducting ring ~~(32)~~ surrounding the second circular plate; and

a second plurality of capacitors ~~(34)~~ arranged radially around the second circular plate, connecting the second circular plate to the second circular conducting ring.

6. (Currently Amended) The MRI apparatus as set forth in claim 5, wherein each of the first and second RF screens ~~(26,28)~~ is larger in diameter than the respective resonator ~~(22,24)~~.

7. (Currently Amended) The MRI apparatus as set forth in claim 5, wherein said first and second plurality of capacitors ~~(34)~~ are PCB capacitors.

8. (Currently Amended) The MRI apparatus as set forth in claim 2, wherein the first resonator ~~(22)~~ includes:

a first conductor ~~(30)~~;

a first conducting ring ~~(32)~~ surrounding the first conductor; and

a first plurality of capacitors ~~(34)~~ arranged radially around the first conductor, connecting the first conductor to the first conducting ring.

9. (Currently Amended) The MRI apparatus as set forth in claim 2, wherein the first resonator ~~(22)~~ includes:

a first ring or plate ~~(30)~~;

a first conducting ring ~~(32)~~ surrounding the first ring or plate; and

a first plurality of capacitors ~~(34)~~ arranged radially around the first ring or plate, connecting the first ring or plate to the first conducting ring.

10. (Original) The MRI apparatus as set forth in claim 2, wherein the B_0 magnetic field is a vertical field.

11. (Currently Amended) The MRI system as set forth in claim 4, further including:

sequence control means ~~(40)~~ for controlling a gradient control ~~(41b)~~ and RF transmitter ~~(41a)~~ to induce spatially encoded magnetic resonance signals in the examination zone;

receiving means ~~(42)~~ for receiving and demodulating magnetic resonance signals received from the first planar resonator ~~(22)~~;

reconstruction means ~~(44)~~ for reconstructing the demodulated magnetic resonance signals into at least one image representation;

memory means ~~(46)~~ for storing image data of the at least one image representation;

image processing means ~~(48)~~ for performing image and volumetric analysis of the image data, and creating analysis data;

video processing means ~~(50)~~ for converting the image data and analysis data into an appropriate format for display; and

display means ~~(52)~~ for displaying the converted image data and the converted analysis data.

12. (Original) A planar resonator for use in the MRI apparatus of claim 1.

13. (Currently Amended) A resonator for an open MRI system, the resonator comprising:

a round, central conductor ~~(30)~~;

an annular ring ~~(32)~~ surrounding and in the same plane as the central conductor ~~(30)~~;

a plurality of rungs ~~(33)~~ arranged radially between the central conductor ~~(30)~~ and the annular ring ~~(32)~~ and in the same plane as the central conductor and the annular ring; and

a plurality of capacitors ~~(34)~~ disposed in the rungs.

14. (Currently Amended) The resonator as set forth in claim 13, wherein the central conductor ~~(30)~~ is a plate.

15. (Currently Amended) The resonator as set forth in claim 13, wherein the central conductor ~~(30)~~ is circular.

16. (Currently Amended) The resonator as set forth in claim 13, wherein the plurality of capacitors ~~(34)~~ includes at least 1000 capacitors.

17. (Currently Amended) A method of reducing a stray field in an open MRI apparatus with a resonator ~~(22)~~ adjacent a pole ~~(14)~~ and an RF screen ~~(26)~~ between the resonator and the pole, the method comprising:

mounting a planar central conductor ~~(30)~~ of the resonator adjacent and displaced from the RF screen;

mounting an annular ring ~~(32)~~ surrounding the central conductor;

connecting the central conductor to the annular ring with a plurality of capacitors ~~(34)~~ arranged radially.

18. (Original) The method as set forth in claim 17, wherein the planar central conductor is a plate.

19. (Original) The method as set forth in claim 17, wherein the plurality of capacitors is a maximal number of capacitors.

20. (Original) The method as set forth in claim 17, wherein the distance between the RF screen and the resonator is maximized.